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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,353

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EXAMINER

BUSHEY, CHARLES S

ART UNIT

PAPER NUMBER

1724

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,353	Applicant(s) PAKDAMAN, ABOLGHASSEM	
	Examiner Scott Bushey	Art Unit 1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-12,14 and 18-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,4-12,14 and 18-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20, which is written as a method claim fails to further limit the apparatus or process claims from which it depends since it does not recite a manipulative step, as required of a process claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6, 7, 12, and 18-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ferriss (Figs. 2-6; col. 3, lines 58-63).

Applicant should note that Ferriss discloses a process and apparatus for continuous gas enrichment of a fluid, wherein the gas enters the tubular device (7) through perforated tubular outlet portions (23,25), which form the gas inlet nozzle means, the fluid enters through line (16a) and the gas enriched fluid exits through line (27). The apparatus also includes a plurality of volumetric portions defined in the areas

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of bubbles (13a and 13d), with a plurality of walls (14, 14a, 14b), having differently sized perforations, arranged between the volumetric portions.

With respect to instant claim 20, since such does not recite a manipulative step, the reference is considered to anticipate that which is claimed thereby, which amounts to a broadly recited material to be produced by use of the apparatus, the claim failing to either further limit the apparatus or proposed process of using the apparatus.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferriss.

Ferriss (Figs. 2-6; col. 3, lines 58-63) as applied to claims 1, 6, 7, 12, and 18-20 above, substantially discloses applicant's invention as recited by instant claims 8 and 9, except for the specific material of construction of the device. While the text of Ferriss is silent as to the specific material of construction of the device, the hatching used in the drawings portion of the disclosure of the reference indicates that the device is of metallic construction. It would have been obvious for an artisan at the time of the invention, to utilize any known metal for the construction of the device, including those as recited by instant claims 8 and 9, since use of a known material based upon its suitability for the desired purpose, has been established by the Court as evidence of obviousness.

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7. Claims 4, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferriss taken together with Hirose et al.

Ferriss (Figs. 2-6; col. 3, lines 58-63) as applied to claims 1, 6, 7, 12, and 18-20 above, substantially discloses applicant's invention as recited by instant claims 4, 10, and 11, except for perforated plates having different sized perforations on alternating plates, and the device having cooling means associated therewith.

Hirose et al (Abstract; Figs. 1, 2A, and 3A; col. 2, line 59) disclose a fluid mixing apparatus similar in construction to that of Ferriss, wherein alternating plates (7,11) have perforations of differing sizes to assist in mixing of the fluids. Hirose et al also construct their device from robust metal construction with cooling channels (15) therein. It would have been obvious for an artisan at the time of the invention, to provide alternating plates of the Ferriss device with perforations of differing sizes, in view of Hirose et al, to assist in the turbulizing and thus mixing of the fluids being acted on by the apparatus. Further, wherein Hirose et al clearly disclose a metal construction with cooling means therein, it would have been obvious for an artisan at the time of the invention, to construct the metallic mixing apparatus of Ferriss with a cooled casing, since such would provide a reliable mixing chamber that would allow for operation under a wide range of pressures and temperatures, if desired.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ferriss taken together with any one of Lockey, Seidel, and Rubin.

Ferriss (Figs. 2-6; col. 3, lines 58-63) as applied to claims 1, 6, 7, 12, and 18-20 above, substantially discloses applicant's invention as recited by instant claim 5, except

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for the gas inlet means including a multiple layer, tubular device with different sized perforations within the different layers thereof.

Lockey (Fig. 1; page 1, col. 1, lines 53-55; page 1, col. 2, lines 1-19, 39-54), Seidel (Fig. 8), and Rubin (Figs. 3 and 4) each alternatively disclose gas inlet means into a gas/liquid mixing device, wherein the gas passes through multiple layers having different sized perforations during its passage through the inlet means into the mixing chamber, which assists in breaking the gas stream up into small bubbles that are able to better contact and mix with a liquid phase. It would have been obvious for an artisan at the time of the invention, to provide the apparatus as taught by Ferriss, with a multi-layer, gas inlet means having different sized perforations in the different layers, in view of any one of the alternative secondary references, since such would improve the contact between the phases by breaking up the incoming gas into smaller bubbles.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ferriss taken together with Smith.

Ferriss (Figs. 2-6; col. 3, lines 58-63) as applied to claims 1, 6, 7, 12, and 18-20 above, substantially discloses applicant's invention as recited by instant claim 14, except for the manometer on the gas supply.

Smith (h in Fig. 1) disclose a gas/liquid mixing device similar to that of Ferriss, wherein there is a manometer means (h) for measuring and adjusting the pressure difference between the gas and liquid within the device, thereby controlling the amount and velocity of the gas stream entering and passing through the device. It would have been obvious for an artisan at the time of the invention, to provide the apparatus of

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Ferriss with a pressure measuring and equalizing means, such as a manometer, in view of Smith, since such would allow for the ease of controlling a consistently produced product stream.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 4-12, 14, and 18-20 have been considered but are moot in view of the new grounds of rejection.

Conclusion

9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is 571 272-1153. The examiner can normally be reached on M-Th 6:30-5:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Scott Bushey
Primary Examiner
Art Unit 1724

csb
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